

We Claim:

1 1. A method of using ultrasound to analyze a media of interest, comprising the steps of:
2 transmitting an ultrasound pulse into the media of interest, the ultrasound pulse being
3 modified by the media of interest;
4 receiving at a transducer the modified ultrasound pulse;
5 generating signals in response to the received modified ultrasound pulse;
6 parallel processing the signals using a plurality of imaging modes; and
7 generating positional data responsive to the parallel processed signals.

1 2. The method of claim 1, wherein the step of generating positional data includes area-forming.

1 3. A method of using ultrasound to analyze a media of interest, comprising the steps of:

2 transmitting a plurality of ultrasound pulse into the media of interest, the ultrasound
3 pulses being modified by the media of interest;
4 receiving at one or more transducers the modified ultrasound pulses;
5 generating analog signals in response to the received modified ultrasound pulses;
6 converting the analog signals to digital data using an A/D converter;
7 preprocessing the digital data using a plurality of frequency band preprocessors; and
8 generating positional data responsive to the preprocessed digital data.

1 4. The method of claim 3, wherein digital data resulting from an individual member of the

2 plurality of ultrasound pulses is processed using a plurality of imaging modes.

1 5. The method of claim 3, further including the step of displaying an image visibly temporally
2 synchronized using the generated positional data.

1 6. The method of claim 3, wherein the step of preprocessing the digital data is preprocessed in
2 parallel.

1 7. The method of claim 3, wherein the positional data is generated using echo-forming.

1 8. The method of claim 3, wherein the positional data is generated using echo-forming and the
2 echo-forming uses an area-forming module that includes a plurality of area-formers.

1 9. The method of claim 3, further including the step of providing preprocessed digital data to one
2 or more members of a plurality of area-formers from one or more members of the
3 plurality of frequency band preprocessors.

1 10. The method of claim 6, further including the step of providing the positional data to an image
2 scan converter, wherein the positional data is generated using a plurality of imaging
3 modes.

1 11. The method of claim 10, further including the step of generating image data using the image
2 scan converter and the positional data.

1 12. The method of claim 10, further including the step of generating image data using the image
2 scan converter and the positional data, wherein the image data is visibly temporally
3 synchronized.

1 13. The method of claim 6, wherein the step of preprocessing the digital data is performed using
2 a plurality of imaging modes.

1 14. The method of claim 13, wherein the plurality of imaging modes includes Doppler imaging.

1 15. The method of claim 13, wherein the plurality of imaging modes includes imaging using
2 harmonic frequencies.

1 16. The method of claim 3, wherein the step of preprocessing the digital data is done in parallel,
2 and
3 the plurality of frequency band preprocessors are responsive to encoding within the
4 digital data.

1 17. The method of claim 3, further including the step of post-processing the positional data in
2 parallel using a plurality of post-processors.

1 18. An ultrasonic analysis system comprising:
2 an ultrasound transducer for transmitting ultrasound pulses into a media of interest such
3 that the media of interest modifies the ultrasound pulses;
4 a transducer for receiving the modified ultrasound pulses and generating signals
5 responsive to the modified ultrasound pulses;
6 a plurality of frequency band preprocessors for preprocessing the signals in parallel; and
7 an echo-forming system for generating positional data responsive to the preprocessed
8 signals.

1 19. The system of claim 18, wherein the echo-forming system includes a plurality of
2 beamformers configured to receive signals preprocessed using a plurality of imaging
3 modes.

1 20. The system of claim 18, wherein the echo-forming system includes an area-forming module.